

MONTGOMERY COUNTY, MARYLAND  
DEPARTMENT OF TRANSPORTATION  
TRAFFIC ENGINEERING AND OPERATIONS

MAY 2010

RESIDENTIAL, ROUND, TAPERED, POST-TOP  
DIRECT BURIAL FIBERGLASS POLE  
GRAY OR BLACK

1) DESCRIPTION

The residential, round, tapered, direct burial fiberglass pole shall be made of a fiberglass reinforced composite (fiberglass filament and color pigmented resin), with a polyurethane and UV inhibitor coating, with a natural finish. This fiberglass pole is intended for use on residential roadways, walkways, and tunnels throughout Montgomery County. Any manufacturer, distributor or vendor who submits a bid shall agree to comply with these specifications and the attached drawings.

2) DESIGN CRITERIA

2.1 AASHTO Standards

The residential, round, tapered, direct burial fiberglass pole shall meet the requirements of the American Association of State Highway and Transportation Officials (AASHTO) Standard, "Specification for Structural supports for Highway Signs, Luminaires and Traffic Signals," latest edition.

2.2 Wind Load

The residential, round, tapered, direct burial fiberglass pole shall be designed to resist (at yield strength of the material without permanent deflection or destruction) test loads equivalent to the calculated wind loads developed by the velocity pressures of an 80 MPH wind with a 30% gust factor. A minimum safety factor of 1.82 on the yield strength shall be maintained.

2.3 Effective Projected Area (EPA)

The residential, round, tapered, direct burial fiberglass pole shall be designed using the following assumptions:

- a) The streetlight luminaire shall be mounted at a height of 12 feet above the level of the surrounding ground (EPA of 3 Sq. Ft. +/-).
- b) One (24" x 36") traffic sign may be mounted with the sign's bottom edge 7 feet above the ground. (EPA of 6 Sq. Ft. +/-).

3) MATERIALS

- a) The residential, round, tapered, direct burial fiberglass pole shall be constructed by a winding filament process with color pigmented polyester resin impregnated into the filaments. The filament winding shall be continuously applied with uniform tension.
- b) The resin used will be color pigmented and shall be ultraviolet resistant. A highly weather resistant pigmented polyurethane coating shall be applied to the pole at a minimum thickness of 1.5 mils.

4) FINISH

The residential, round, tapered, direct burial fiberglass pole shall be of a natural finish for the entire length of the pole.

5) TENONS

The residential, round, tapered, direct burial fiberglass pole shall have a permanently bonded, hot-dipped galvanized steel or aluminum, 3 inch tenon.

6) HAND-HOLES

The residential, round, tapered, direct burial fiberglass pole shall have one 2 ½ inch x 5 inch hand-hole, with a non-metallic cover secured with a vandal-resistant, stainless steel screws.

7) POLE

7.1 Shaft

The residential, round, tapered, direct burial fiberglass pole shaft shall have a bottom pole diameter of 5.5 inches (+/- 0.1 inches), and a top pole diameter of 2.9 inches (+/- 0.1 inches)

## 7.2 Length

The residential, round, tapered, direct burial fiberglass pole shall have a nominal minimum luminaire mounting height of 12 feet and a maximum of 14 feet above the surrounding ground. The shaft shall be embedded a minimum of 3 feet in the ground.

